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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/249,489	02/12/1999	TETSUJIRO KONDO	80398.P198	9991

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EXAMINER	
CHAUDRY, MUJTABA M	

ART UNIT	PAPER NUMBER
2133	19

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/249,489	KONDO ET AL.	
	Examiner	Art Unit	
	Mujtaba K Chaudry	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-76 and 78-96* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-76 and 78-96* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *10 March 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawings

The corrected or substitute drawings were received on March 10, 2003. These drawings are accepted.

Specification

The corrected or substitute specification were received on March 10, 2003. The specification is accepted.

Response to Amendment

Applicant's amendments in response to 35 USC 112 rejections (see paper No. 15) of claims 1-96 originally filed February 12, 1999 have been received and are rejected under prior art. As a note of reference, claim 77 was cancelled (See paper No. 18). Pending claims 1-76 and 78-96 are rejected under prior art.

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-76 and 78-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Waibel et al (USPN 5712957).

As per claims 1, 16, 30, 40, 41, 52, 63, 71, 72, 81 and 96, Waibel et al (herein after: Waibel) substantially teaches (title and abstract) a method and apparatus for locating and correcting errors in lost/damaged data. Waibel teaches to repair a machine-recognized (computer-based) speech comprising the steps of receiving a first n-best list of hypotheses from a recognition engine (analogous to data recovery circuit in the present application) and scores for each hypothesis generated in response to a primary utterance to be recognized. An error within the hypothesis having the highest score is located. Control signals are generated from the first n-best list, which are input to the recognition engine to constrain the generation of a second n-best list of hypotheses, and scores for each hypothesis, in response to an event independent of the primary utterance. The scores for the hypotheses in the first n-best list are combined with the scores for the hypotheses in the second n-best list. The hypothesis having the highest combined score is selected as the replacement for the located error. The examiner would like to point out that the functionality of the error recovery circuit in the present application is included within the recognition engine 18 of figure 1, Waibel. Furthermore, the error recovery circuit of the present application is analogous to the correction and repair module 12 as shown in figure 1 of Waibel. Waibel teaches (figure 1) the correction and repair module 12 to be computer readable as stated in the present application. Waibel teaches (col. 1, lines 45-59) a command-based system that is analogous to the computer-based medium that has specific instructions—in the present application.

Waibel does not explicitly teach to decode the lost/damaged data as stated in the present application.

However, the examiner would like to point out Waibel's method and apparatus includes an embodiment, which is centered on speech recognition. Speech is data that can be digitalized and transmitted and received over a communications network, such as VoIP—Voice over Internet Protocol. It is well known in the art that all communications systems inherently include a decoder or a decoding means. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a decoder/decoding means within the error recovery method and apparatus of Waibel. This modification/inclusion would have been obvious to one of ordinary skill in the art because one of ordinary skill in the art would have recognized that the structure of a communications system must inherently include a decoder/decoding means at the receiving end.

As per claims 2-15, Waibel substantially teaches, in view of above rejections, (col. 1, lines 45-59) the error recovery system attempts to avoid incorrect recognitions by looking at a confidence score for each recognition. If the confidence score is below a predetermined threshold, the system will do nothing, and the user must repeat the command again until the score is above the threshold. An error within the hypothesis having the highest score is located. Control signals are generated from the first n-best list, which are input to the recognition engine to constrain the generation of a second n-best list of hypotheses, and scores for each hypothesis, in response to an event independent of the primary utterance. The scores for the hypotheses in the first n-best list are combined with the scores for the hypotheses in the second n-best list. The hypothesis having the highest combined score is selected as the replacement for the located

error. Furthermore, Waibel teaches (col. 11, lines 9-21) the subpieces in the n-best list, which is alternatives for the highlighted section of the best hypothesis, the start and end frames (or blocks as stated in the present application) of the highlighted section are determined. In all other n-best hypotheses, the subpiece is chosen to include any words between or overlapping the start and end frames. Only unique substrings are used to determine the counts for the bigram language model. The original subpiece, known to contain at least one error, is also excluded from the language model data so that it cannot reoccur. The examiner would like to point out that the speech data could be combined with image data, which does not necessarily change the method of error recovery.

As per claims 17-29, 73-76 and 78-80, Waibel substantially teaches, in view of above rejections, (col. 1, lines 45-59) the error recovery system to look at each score for each frame/block. As stated before, if the confidence score is below a predetermined threshold, the system will do nothing, and the user must repeat the command again until the score is above the threshold. An error within the hypothesis having the highest score is located. Control signals are generated from the first n-best list, which are input to the recognition engine to constrain the generation of a second n-best list of hypotheses, and scores for each hypothesis, in response to an event independent of the primary utterance. The scores for the hypotheses in the first n-best list are combined with the scores for the hypotheses in the second n-best list. The hypothesis having the highest combined score is selected as the replacement for the located error. Furthermore, Waibel teaches (col. 11, lines 9-21) the subpieces in the n-best list, which is alternatives for the highlighted section of the best hypothesis, the start and end frames (or blocks as stated in the present application) of the highlighted section are determined. In all other

n-best hypotheses, the subpiece is chosen to include any words between or overlapping the start and end frames. Only unique substrings are used to determine the counts for the bigram language model. The original subpiece, known to contain at least one error, is also excluded from the language model data so that it cannot reoccur. The examiner would like to point out that the speech data could be combined with image data which does not necessarily change the method of error recovery.

As per claims 31-39 and 64-70, Waibel substantially teaches, in view of the above rejections, (figure 1, Waibel) a computer readable medium as stated in the present application. Waibel teaches the error recovery system attempts to avoid incorrect recognitions by looking at a confidence score for each recognition. If the confidence score is below a predetermined threshold, the system will do nothing, and the user must repeat the command again until the score is above the threshold. An error within the hypothesis having the highest score is located. Control signals are generated from the first n-best list, which are input to the recognition engine to constrain the generation of a second n-best list of hypotheses, and scores for each hypothesis, in response to an event independent of the primary utterance. The scores for the hypotheses in the first n-best list are combined with the scores for the hypotheses in the second n-best list. The hypothesis having the highest combined score is selected as the replacement for the located error. Furthermore, Waibel teaches (col. 11, lines 9-21) the subpieces in the n-best list, which is alternatives for the highlighted section of the best hypothesis, the start and end frames (or blocks as stated in the present application) of the highlighted section are determined. In all other n-best hypotheses, the subpiece is chosen to include any words between or overlapping the start and end frames. Only unique substrings are used to determine the counts for the bigram

language model. The original subpiece, known to contain at least one error, is also excluded from the language model data so that it cannot reoccur. The examiner would like to point out that the speech data could be combined with image data, which does not necessarily change the method of error recovery.

As per claims 42-51, 53-62 and 82-88, Waibel substantially teaches, in view of above rejections, (col. 11, lines 9-21) a simple bigram model (no unseen word-pair probability) based only on the counts found in the appropriate subpieces of the n-best list. To find all the possible subpieces in the n-best list which were alternatives for the highlighted section of the best hypothesis, the start and end frames of the highlighted section were determined, as stated in the present application. In all other n-best hypotheses, the subpiece was chosen to include any words between or overlapping the start and end frames. Only unique substrings were used to determine the counts for the bigram language model. The original subpiece (known to contain at least one error) is also excluded from the language model data so that it cannot reoccur. Waibel teaches (col. 1, lines 45-59) the error recovery system to look at each score for each frame/block. As stated before, if the confidence score is below a predetermined threshold, the system will do nothing, and the user must repeat the command again until the score is above the threshold. An error within the hypothesis having the highest score is located. Control signals are generated from the first n-best list, which are input to the recognition engine to constrain the generation of a second n-best list of hypotheses, and scores for each hypothesis, in response to an event independent of the primary utterance. The scores for the hypotheses in the first n-best list are combined with the scores for the hypotheses in the second n-best list. The hypothesis having the highest combined score is selected as the replacement for the located error.

Furthermore, Waibel teaches (col. 11, lines 9-21) the subpieces in the n-best list, which is alternatives for the highlighted section of the best hypothesis, the start and end frames (or blocks as stated in the present application) of the highlighted section are determined. The examiner would like to point out that the speech data could be combined with image data, which does not necessarily change the method of error recovery. In all other n-best hypotheses, the subpiece is chosen to include any words between or overlapping the start and end frames. Only unique substrings are used to determine the counts for the bigram language model. The original subpiece, known to contain at least one error, is also excluded from the language model data so that it cannot reoccur.

As per claims 90-95, Waibel substantially teaches, in view of above rejections, (figure 1, Waibel) a computer readable medium as stated in the present application. Waibel teaches the error recovery system attempts to avoid incorrect recognitions by looking at a confidence score for each recognition. If the confidence score is below a predetermined threshold, the system will do nothing, and the user must repeat the command again until the score is above the threshold. An error within the hypothesis having the highest score is located. Control signals are generated from the first n-best list, which are input to the recognition engine to constrain the generation of a second n-best list of hypotheses, and scores for each hypothesis, in response to an event independent of the primary utterance. The scores for the hypotheses in the first n-best list are combined with the scores for the hypotheses in the second n-best list. The hypothesis having the highest combined score is selected as the replacement for the located error. Furthermore, Waibel teaches (col. 11, lines 9-21) the subpieces in the n-best list, which is alternatives for the highlighted section of the best hypothesis, the start and end frames (or blocks as stated in the

present application) of the highlighted section are determined. In all other n-best hypotheses, the subpiece is chosen to include any words between or overlapping the start and end frames. Only unique substrings are used to determine the counts for the bigram language model. The original subpiece, known to contain at least one error, is also excluded from the language model data so that it cannot reoccur. The examiner would like to point out that the speech data could be combined with image data, which does not necessarily change the method of error recovery.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Waibel teaches a method and apparatus for locating and correcting errors in lost/damaged data. Applicant is further invited to read review additional pertinent prior art that has been included herein.

Any inquiries concerning this communication should be directed to the examiner, Mujtaba Chaudry who may be reached at 703-305-7755. The examiner may normally be reached Mon – Thur 7:30 am to 4:30 pm and every other Fri 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, Albert DeCady at 703-305-9595. The fax phone number for the organization where this application is assigned is 703-746-7239.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist at 703-305-3900.

Mujtaba Chaudry
Art Unit 2133
April 15, 2003

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